

SEQUENCE LISTING

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<120> IDENTIFICATION OF CANDIDA ALBICANS ESSENTIAL FUNGAL  
SPECIFIC GENES AND USE THEREOF IN ANTIFUNGAL DRUG  
DISCOVERY

<130> 10182-015

<140>  
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<150> PCT/CA00/00533  
<151> 2000-05-05

<150> 60/132,878  
<151> 1999-05-05

<160> 6

<170> PatentIn Ver. 2.1

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Arg Asn Leu Arg Ile Ile Pro Leu Glu Pro Ser Asp Ile Ile Tyr Lys	
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Asp Val Pro His Lys Trp Ile Val Val Pro Gln Leu Ser Ser Met Asp	
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1315 1320 1325

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1375 1380 1385 1390

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1395 1400 1405

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<213> Candida albicans

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Ile Val Gly Phe Asn Asp Ser Leu Tyr Glu Gln Thr Ile Glu Thr Ile  
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Phe Gly Leu Gly Asp Thr Glu Val Glu Leu Glu Asp Asp Ala Ser Asp  
65 70 75 80

Gln Glu Ile Tyr Ser Thr Val Ile Asn Ser Leu Gly Leu Thr Asp Gln  
85 90 95

Asp Leu Asp Phe Ile Asn Phe Asp Leu Thr Asn Lys Lys His Thr Pro  
100 105 110

Arg Ile Ala Ala His Tyr Asp His Tyr Ser Asp Val Leu Thr Lys Phe  
115 120 125

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Lys Ile Tyr Cys Ser Ala Asn Asp Leu Phe Ala Leu Arg Thr Asp Leu  
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Ser Ser His Ser Thr Leu Leu Phe Asp Arg Ile Ile Gly Lys Ser Lys  
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Asp Ala Pro Leu Val Ile Leu Tyr Gly Ser Pro Thr Glu Glu Leu Thr  
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Lys Asp Phe Leu Lys Ile Leu Tyr Pro Asp Ala Lys Ala Gly Lys Leu  
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Lys Phe Val Trp Arg Tyr Ile Pro Leu Gly Ile Lys Lys Leu Asp Ser  
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Gly Ala Glu Gly Asn Pro Lys Tyr Asp Leu Ser Arg Asp Phe Thr Arg  
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Ile Asn Asp Ser Gln Glu Leu Val Leu Val Asn Glu Lys His Ser Tyr  
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Gln Ala Phe Asn Gln Ala Glu Gln Leu Ser Glu Gln Gln Ala Leu Ala  
75 80 85

ttg	gca	cag	gaa	aga	agc	aat	gga	aat	gga	cat	agt	aat	ggc	aaa	cgt	2321
Leu	Ala	Gln	Glu	Arg	Ser	Asn	Gly	Asn	Gly	His	Ser	Asn	Gly	Lys	Arg	
90					95					100					105	

cat caa tca tta gac ggt gcc atg aat aga ctt tca gtt ggt tct gat 2369  
His Gln Ser Leu Asp Gly Ala Met Asn Arg Leu Ser Val Gly Ser Asp  
110 115 120

agt agt tcg att caa ggt tca ttg aca cga atg gct acc aat gcg tca 2417  
 Ser Ser Ser Ile Gln Gly Ser Leu Thr Arg Met Ala Thr Asn Ala Ser  
 125 130 135

acg tca tct tta atc agt ggt atg cca aac agc aac act tta ttt acg 2465  
Thr Ser Ser Leu Ile Ser Gly Met Pro Asn Ser Asn Thr Leu Phe Thr  
140 145 150



*[Handwritten musical notation]*

$$\frac{d}{dt} \left( \frac{\partial L}{\partial \dot{x}} \right) = \frac{\partial L}{\partial x}$$

tca ggt aga aag gaa agc ggc tca ttc act ttg aga tat cgt agt gaa	3857
Ser Gly Arg Lys Glu Ser Gly Ser Phe Thr Leu Arg Tyr Arg Ser Glu	
605 610 615	
gaa gcc aga aac caa tgg gaa aag tgt tta cgt gat ttg aag act aat	3905
Glu Ala Arg Asn Gln Trp Glu Lys Cys Leu Arg Asp Leu Lys Thr Asn	
620 625 630	
gaa atg aat aaa caa att cat aag aag tta cgt gat tcc gac ctg tca	3953
Glu Met Asn Lys Gln Ile His Lys Lys Leu Arg Asp Ser Asp Leu Ser	
635 640 645	
ttt aat act gat gac tct gcc ata tat gat tac acg ggt att agt acg	4001
Phe Asn Thr Asp Asp Ser Ala Ile Tyr Asp Tyr Thr Gly Ile Ser Thr	
650 655 660 665	
tca cca gtc aat caa tca act caa caa caa tac tat gat cat cgg ggc	4049
Ser Pro Val Asn Gln Ser Thr Gln Gln Gln Tyr Tyr Asp His Arg Gly	
670 675 680	
tct cac agt tcc cgc cat cac tca tcg tca tcc act ttg agt atg atg	4097
Ser His Ser Ser Arg His His Ser Ser Ser Thr Leu Ser Met Met	
685 690 695	
aag aat aat aga gtt aaa tct ggt gat ttg agt aga ata tct tca act	4145
Lys Asn Asn Arg Val Lys Ser Gly Asp Leu Ser Arg Ile Ser Ser Thr	
700 705 710	
tca aca aca tta gat tct ttc agt aac aac ttg aat ggg tca cca aat	4193
Ser Thr Thr Leu Asp Ser Phe Ser Asn Asn Leu Asn Gly Ser Pro Asn	
715 720 725	
acc act aat cca tct ttg acg tct tca gat gcc acc aaa aca att cca	4241
Thr Thr Asn Pro Ser Leu Thr Ser Ser Asp Ala Thr Lys Thr Ile Pro	
730 735 740 745	
aca ttt gac gtt gca att aaa ttg ctt tac aaa tcg aca gaa ttg tca	4289
Thr Phe Asp Val Ala Ile Lys Leu Leu Tyr Lys Ser Thr Glu Leu Ser	
750 755 760	
gag cca ttg att gtc aat gca caa att gag tat aat gac ctt tta cag	4337
Glu Pro Leu Ile Val Asn Ala Gln Ile Glu Tyr Asn Asp Leu Leu Gln	
765 770 775	
aaa att atc tcc cag att atc act tcg aac ttg gtg gct gat gat gtc	4385
Lys Ile Ile Ser Gln Ile Ile Thr Ser Asn Leu Val Ala Asp Asp Val	
780 785 790	
aat att agt cga ttg aga tat aaa gac gac gaa gga gac ttt gtg aat	4433
Asn Ile Ser Arg Leu Arg Tyr Lys Asp Asp Glu Gly Asp Phe Val Asn	
795 800 805	
ttg aat tca gat gat gat tgg ggg tta gtg ctt gat atg tta acc agt	4481
Leu Asn Ser Asp Asp Asp Trp Gly Leu Val Leu Asp Met Leu Thr Ser	
810 815 820 825	

gaa gac ttt tac caa aca tca agc aat gaa aaa cga ctg gtg aca gtg 4529  
 Glu Asp Phe Tyr Gln Thr Ser Ser Asn Glu Lys Arg Leu Val Thr Val  
 830 835 840

tgg gtt tct tgatttaact acaggaacaa acgctacctt tgtttggtgt 4578  
 Trp Val Ser

gtgtgtgtat gtatgggtgc tttttttttt tatttcttga tgggtgtgtga ctttggaaga 4638

taaacaaatt aagagttaat gttttgctgt gcaaaataag ctgttataga tgggttcaat 4698

taatcaattt catatagata tataaatgac actttgacga aatatactat ttataaattt 4758

ccttttttct ttgttttgta agattaatgt tgggttctgt tgatgtgtcg gtacacccaaa 4818

cgcaataatt aaaatctagt aagacggtaa atgggtagat gagaaaagggt caatagagtt 4878

tattctaattg tgggtgcaaa tttaaaggcaa cagataaatt tggtaaacad tttctaaaac 4938

gtattgccgc ttccagagtc aaaaaaaaga ataaagctaa tatattagtg ctaataatag 4998

tagtaataca aaacaagggt tcaaagtttt cgctcaaaac atcaagccat tgcttatata 5058

ggatgaacta ttcaattaac aggcaaaaaa aagccatcat ttgaaaagac tctcatatca 5118

aagaggtaac ttctaatagt aatcacttgt tgtttttgat tattaaatga tttgattcta 5178

ttggttgaac taaccccaaw tgggtttktt gtttgccggg ttgaraatga atgccataaa 5238

tnattcaatt tgaaaaaaa aaaaaatnct aatacaacac acccaaccct ttgcntttat 5298

ca 5300

<210> 6

<211> 844

<212> PRT

<213> Candida albicans

<400> 6

Met Glu His Pro Pro Ala Ala Leu Arg Thr Phe Ser Thr Gln Ser Thr  
 1 5 10 15

Ser Ser Leu Asn Ser Val Ser Thr Val Ser Ser Ser Arg Ile Val Ser  
 20 25 30

Leu Gly Pro Val Asn Ile Asn Asn Phe Asn Lys Pro Ser Thr Pro Lys  
 35 40 45

Asp His Leu Phe Tyr Arg Cys Glu Ser Leu Lys Arg Lys Leu Gln Lys  
 50 55 60

Ile Pro Gly Met Glu Pro Phe Leu Asn Gln Ala Phe Asn Gln Ala Glu  
 65 70 75 80

Gln Leu Ser Glu Gln Gln Ala Leu Ala Leu Ala Gln Glu Arg Ser Asn  
 85 90 95

Gly Asn Gly His Ser Asn Gly Lys Arg His Gln Ser Leu Asp Gly Ala  
100 105 110

Met Asn Arg Leu Ser Val Gly Ser Asp Ser Ser Ser Ile Gln Gly Ser  
115 120 125

Leu Thr Arg Met Ala Thr Asn Ala Ser Thr Ser Ser Leu Ile Ser Gly  
130 135 140

Met Pro Asn Ser Asn Thr Leu Phe Thr Phe Thr Ala Gly Val Leu Pro  
145 150 155 160

Ala Asn Ile Ser Val Asp Pro Ala Thr His Leu Trp Lys Leu Phe Gln  
165 170 175

Gln Gly Ala Pro Phe Cys Val Leu Ile Asn His Ile Leu Pro Asp Ser  
180 185 190

Gln Ile Pro Val Val Ser Ser Asp Asp Leu Arg Ile Cys Lys Lys Ser  
195 200 205

Val Tyr Asp Phe Leu Ile Ala Val Lys Thr Gln Leu Asn Phe Asp Asp  
210 215 220

Glu Asn Met Phe Thr Ile Ser Asn Val Phe Ser Asp Asn Ala Gln Asp  
225 230 235 240

Leu Ile Lys Ile Ile Asp Val Ile Asn Lys Leu Leu Ala Glu Tyr Ser  
245 250 255

Asp Ala Ser Asp Leu Gly Gly Gly Asp Glu Asp Val Asn Met Asp Val  
260 265 270

Gln Ile Thr Asp Glu Arg Ser Lys Val Phe Arg Glu Ile Ile Glu Thr  
275 280 285

Glu Arg Lys Tyr Val Gln Asp Leu Glu Leu Met Cys Lys Tyr Arg Gln  
290 295 300

Asp Leu Ile Glu Ala Glu Asn Leu Ser Ser Glu Gln Ile His Leu Leu  
305 310 315 320

Phe Pro Asn Leu Asn Glu Ile Ile Asp Phe Gln Arg Arg Phe Leu Asn  
325 330 335

Gly Leu Glu Cys Asn Ile Asn Val Pro Ile Arg Tyr Gln Arg Ile Gly  
340 345 350

Ser Val Phe Ile His Ala Ser Leu Gly Pro Phe Asn Ala Tyr Glu Pro  
355 360 365

Trp Thr Ile Gly Gln Leu Thr Ala Ile Asp Leu Ile Asn Lys Glu Ala  
370 375 380

Ala Asn Leu Lys Lys Ser Ser Ser Leu Leu Asp Pro Gly Phe Glu Leu  
385 390 395 400

Gln Ser Tyr Ile Leu Lys Pro Ile Gln Arg Leu Cys Lys Tyr Pro Leu  
405 410 415

Leu Leu Lys Glu Leu Ile Lys Thr Ser Pro Glu Tyr Ser Lys Gln Asp  
420 425 430

Pro His Gly Ser Ser Ser Leu Thr Ser Phe Asn Glu Leu Leu Val Ala  
435 440 445

Lys Thr Ala Met Lys Glu Leu Ala Asn Gln Val Asn Glu Ala Gln Arg  
450 455 460

Arg Ala Glu Asn Ile Glu His Leu Glu Lys Leu Lys Glu Arg Val Gly  
465 470 475 480

Asn Trp Arg Gly Phe Asn Leu Asp Ala Gln Gly Glu Leu Leu Phe His  
485 490 495

Gly Gln Val Gly Val Lys Asp Ala Glu Asn Glu Lys Glu Tyr Val Ala  
500 505 510

Tyr Leu Phe Glu Lys Ile Val Phe Phe Phe Thr Glu Ile Asp Asp Asn  
515 520 525

Lys Lys Ser Asp Lys Gln Glu Lys Lys Ser Lys Phe Ser Thr Arg Lys  
530 535 540

Arg Ser Thr Ser Ser Asn Leu Ser Ser Ser Thr Thr Asn Leu Leu Glu  
545 550 555 560

Ser Ile Asn Asn Ser Arg Lys Asp Asn Thr Leu Pro Leu Glu Leu Lys  
565 570 575

Gly Arg Val Tyr Ile Ser Glu Ile Tyr Asn Ile Ser Ala Pro Asn Thr  
580 585 590

Pro Gly Ser Thr Leu Ile Ile Ser Trp Ser Gly Arg Lys Glu Ser Gly  
595 600 605

Ser Phe Thr Leu Arg Tyr Arg Ser Glu Glu Ala Arg Asn Gln Trp Glu  
610 615 620

Lys Cys Leu Arg Asp Leu Lys Thr Asn Glu Met Asn Lys Gln Ile His  
625 630 635 640

Lys Lys Leu Arg Asp Ser Asp Leu Ser Phe Asn Thr Asp Asp Ser Ala  
645 650 655

Ile Tyr Asp Tyr Thr Gly Ile Ser Thr Ser Pro Val Asn Gln Ser Thr  
660 665 670

Gln Gln Gln Tyr Tyr Asp His Arg Gly Ser His Ser Ser Arg His His  
675 680 685

Ser Ser Ser Ser Thr Leu Ser Met Met Lys Asn Asn Arg Val Lys Ser  
690 695 700

Gly	Asp	Leu	Ser	Arg	Ile	Ser	Ser	Thr	Ser	Thr	Thr	Leu	Asp	Ser	Phe
705					710					715					720
Ser	Asn	Asn	Leu	Asn	Gly	Ser	Pro	Asn	Thr	Thr	Asn	Pro	Ser	Leu	Thr
				725					730					735	
Ser	Ser	Asp	Ala	Thr	Lys	Thr	Ile	Pro	Thr	Phe	Asp	Val	Ala	Ile	Lys
			740					745					750		
Leu	Leu	Tyr	Lys	Ser	Thr	Glu	Leu	Ser	Glu	Pro	Leu	Ile	Val	Asn	Ala
		755					760					765			
Gln	Ile	Glu	Tyr	Asn	Asp	Leu	Leu	Gln	Lys	Ile	Ile	Ser	Gln	Ile	Ile
	770					775						780			
Thr	Ser	Asn	Leu	Val	Ala	Asp	Asp	Val	Asn	Ile	Ser	Arg	Leu	Arg	Tyr
785					790					795					800
Lys	Asp	Asp	Glu	Gly	Asp	Phe	Val	Asn	Leu	Asn	Ser	Asp	Asp	Asp	Trp
				805					810					815	
Gly	Leu	Val	Leu	Asp	Met	Leu	Thr	Ser	Glu	Asp	Phe	Tyr	Gln	Thr	Ser
			820					825					830		
Ser	Asn	Glu	Lys	Arg	Leu	Val	Thr	Val	Trp	Val	Ser				
		835					840								